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EXAMINER				
HUGHES, SCOTT A				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/532,647

**Applicant(s)**

ARNEGAARD ET AL.

**Examiner**

SCOTT A. HUGHES

**Art Unit**

3663

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 1/16/2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10, 12, 13 and 15-25 is/are pending in the application.
- 4a) Of the above claim(s) 9 and 18-25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8, 10, 12, 13 and 15-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 April 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Arguments***

Applicant's arguments with respect to claims 1-10, 12-13, and 15-25 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's arguments with respect to the synchronization service are not persuasive in view of the new grounds of rejection presented below because the Arescon article teaches synchronization of the components in a seismic network using NTP, and the Szyszko reference (US20020071430) teaches that NTP can be used to synchronize components of the network such as routers.

Applicant's amendments to the claims are sufficient to overcome the rejections under 35 USC 112 of the previous Office Action.

To clarify, page 2 of the prior Office Action should have stated that claims 18-20 are withdrawn as being non-elected species, not claims 17-20.

Claims 9 and 18-20 are drawn to non-elected species and claims 21-25 are drawn to non-elected Groups of inventions. Therefore, claims 9 and 18-25 are withdrawn from consideration.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2, 4, 6, 10, 12-13, and 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arescon (Embedded Linux in a Soft Real-Time Task: The Canadian Geological Survey Internet Seismometer) in view of Szyszko (US20020071430).

With regard to claim 1, Arescon discloses a seismic acquisition system (Geological Survey of Canada) (Pages 5-7), comprising: a plurality of seismic data sources capable of generating data (seismometers); at least one data collection system (storage, data servers) utilizing an open network protocol (Internet Protocols) (Pages 5-10) (Figs. 1, 3); and at least one line network connecting the data sources to the data collection system and utilizing the open network protocol (Figs. 1, 3) (Page 5, Section 3 to Page 9), the line network including: a plurality of data source nodes at which a portion of the plurality of seismic data sources (seismometers, accelerometers) are respectively attached to the line network (Figs. 1, 3) (Page 5, Section 3 to Page 9); and a router for routing data generated by the seismic data sources to the data collection system through the data source nodes in accordance with the open network protocol (Fig. 1) (Pages 7-9). Arescon discloses a synchronization service for synchronizing a plurality of clocks for the data collection system, the data source nodes, and the seismic data sources (Page 9). Arescon does not specifically disclose that the routers are also synchronized over the internet by the NTP. Szyszko teaches that NTP synchronizes routers in a network ([0017-0019]). It would be obvious to modify Arescon to include the network routers in the devices that are synchronized using the NTP in order to have all routers in the system using the same key for encrypting the data sent.

With regard to claim 2, Arescon discloses that the router routes data to the seismic data sources (Page 5, Section 3 to Page 9).

With regard to claim 4, Arescon discloses at least one additional router for routing data generated by the seismic data sources to the data collection system through the data source nodes in accordance with the open network protocol (Pages 5-6, 9).

With regard to claim 6, Arescon discloses that the line network comprises a land based seismic cable (Pages 2-6).

With regard to claim 10, Arescon discloses that the open network protocol includes the Internet Protocol (Pages 5-6, 9).

With regard to claim 12, Arescon discloses that the synchronization service comprises the Network Time Protocol (Page 9).

With regard to claim 13, Arescon discloses that the at least one data collection system further comprises a location mapping service for mapping between network addresses and logical locations of the data collection system, the router, the data source nodes, and the seismic data sources (pages 9-10); and an auto-configuration capability for automatically reconfiguring the network upon removal of any one of the router, the data source nodes, or the seismic data sources, or upon the addition of an additional piece of seismic equipment (Pages 9-10).

With regard to claim 15, Arescon discloses that the synchronization service tolerates changes in topology (Page 9).

With regard to claim 16, Arescon discloses that the synchronization service synchronizes clock hierarchically (Page 9).

With regard to claim 17, Arescon discloses that the service tolerates breaks (Pages 9-10).

Claims 3 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arescon in view of Szyszko as applied to claim 1 above, and further in view of Johnson (Eos. Trans. AGU Fall Meeting, 2001).

With regard to claims 3 and 5, Arescon does not disclose that each of the data source nodes is assigned at least two respective network addresses under the open network protocol. Johnson teaches a network setup for monitoring seismic events, and teaches that the source nodes and data collection system are assigned at least two respective network addresses under open network protocol (Pages 1-2). It would have been obvious to modify Arescon to include two respective network addresses for the components of the system as taught by Johnson in order to have a network that can operate in different modes and to simplify the physical cables needed between devices.

Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arescon in view of Szyszko as applied to claims 1-5 and 10-13 above, and further in view of Read (4885724).

With regard to claims 7-8, Arescon does not disclose that the seismic data sources include at seismic sources that are vibrators. Read teaches that seismic

sources that are vibrators are known sources used in seismic surveys (abstract; Columns 2-3) (Fig. 1b). It would have been obvious to modify Arescon to include vibrators as seismic sources in order to have sources for seismic prospecting that are economical and that can be programmed to generate desired source waveforms.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SCOTT A. HUGHES whose telephone number is (571)272-6983. The examiner can normally be reached on M-F 9:00am to 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on (571) 272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/S. A. H./  
Examiner, Art Unit 3663

/Jack W. Keith/  
Supervisory Patent Examiner, Art Unit 3663